

## ABSTRACT

A solenoid that has a small body and increased propulsion in a controlled range is provided.

The solenoid is characterized by being provided with a bearing 40 formed of a nonmagnetic body,  $n$  (where  $n$  is a positive integer of zero or above) grooves 56 and  $n+1$  tooth parts 58 that are adjacent to the grooves 56 and function as magnetic poles being provided in a facing surface 52 of a first upper yoke 54a,  $m$  (where  $m$  is a positive integer of zero or above) grooves 70 and  $m+1$  tooth parts 72, 74 that are adjacent to the grooves 70 and function as magnetic poles being provided in a facing surface 55 of a second upper yoke 54b,  $n+1$  grooves 56 and  $n+1$  tooth parts 58, 59 that are adjacent to the grooves 56 and function as magnetic poles being provided in a surface 52 of the slider 36 that faces the first upper yoke 54a, and  $m$  grooves 76 and  $m$  tooth parts 78 that are adjacent to the grooves 76 and function as magnetic poles being provided in a surface 55 of the slider 36 that faces the second upper yoke 54b.